

CLAIMS

What is claimed is:

1. An optical navigation device comprising:
5 an adjustable light source disposed to emit light onto a surface;
a sensor disposed to receive light reflected from said surface, wherein
light received by said sensor is used to measure movement of said optical
navigation device relative to said surface; and
a light-sensitive device coupled to said light source, said light-
10 sensitive device disposed to receive light from said light source to regulate
light emitted from said light source according to a level of light received at
said light-sensitive device.
2. The optical navigation device of Claim 1 wherein light received
15 by said light-sensitive device is reflected from said surface.
3. The optical navigation device of Claim 1 wherein said light-
sensitive device generates an output indicative of said level of light received
by said light-sensitive device, wherein said light source is adjusted
20 according to said output.
4. The optical navigation device of Claim 3 further comprising
circuitry coupled to said light-sensitive device, said circuitry receiving said
output and comparing said output to a threshold level, wherein said light
25 source is adjusted according to a result of said comparing.
5. The optical navigation device of Claim 4 wherein said output
from said light-sensitive device comprises an electrical current and wherein
said threshold level comprises a threshold voltage, wherein said circuitry
30 converts said electrical current into a voltage that is compared to said
threshold voltage.
6. The optical navigation device of Claim 5 wherein said circuitry
further comprises a selectable gain for application to said electrical current.
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7. The optical navigation device of Claim 4 wherein said result of said comparing regulates a variable resistor coupled to said light source, said variable resistor regulating said light source.

5 8. The optical navigation device of Claim 1 wherein said light source comprises a light-emitting diode.

9. The optical navigation device of Claim 1 wherein said light-sensitive device comprises a photodiode.

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10. An optical navigation method comprising:
receiving light at a sensor, said light emitted by a light source and reflected from a surface, wherein light received at said sensor is used to measure movement of an optical navigation device relative to said surface;
15 receiving light at a light-sensitive device, wherein light received by said light-sensitive device is also emitted by said light source; and
regulating said light source according to a level of light received at said light-sensitive device.

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11. The optical navigation method of Claim 10 wherein light received at said light-sensitive device is reflected from said surface.

12. The optical navigation method of Claim 10 wherein said regulating further comprises:

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generating a signal indicative of said level of light received at said light-sensitive device; and
adjusting said light source according to said signal.

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13. The optical navigation method of Claim 12 further comprising:
comparing said signal to a threshold level; and
making an adjustment to said light source according to a result of said comparing.

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14. The optical navigation method of Claim 13 wherein said comparing further comprises:
converting said signal from an electrical current into a voltage; and

comparing said voltage to a threshold voltage.

15. The optical navigation method of Claim 14 wherein said converting further comprises:

5 amplifying said electrical current according to a selectable amplifier gain.

16. The optical navigation method of Claim 13 wherein said making an adjustment further comprises:

10 regulating a variable resistor according to said result of said comparing, wherein said variable resistor regulates said light source.

17. The optical navigation method of Claim 10 wherein said light source comprises a light-emitting diode and said light-sensitive device
15 comprises a photodiode.

18. An optical navigation device comprising:

20 a light source that emits light onto a surface, wherein light reflected from said surface is used by said optical navigation device to detect movement relative to said surface; and

 a light-regulating device coupled to said light source to measure light reflected from said surface so as to regulate light emitted from said light source.

25 19. The optical navigation device of Claim 18 wherein said light-regulating device comprises:

 a light-sensitive device to generate an output having a magnitude that corresponds to a level of light received by said light-sensitive device from said light source; and

30 an electronic circuit coupled to said light-sensitive device, said electronic circuit comparing said output to a threshold and generating an output signal that indicates whether or not said threshold is met.

20. The optical navigation device of Claim 19 further comprising:

35 a variable resistor coupled between said electronic circuit and said light source, said variable resistor adjusted using said output signal, said

variable resistor used for regulating a level of light emitted by said light source.

21. The optical navigation device of Claim 19 wherein said light
5 source comprises a light-emitting diode and said light-sensitive device comprises a photodiode.

22. The optical navigation device of Claim 19 wherein said output
of said light-sensitive device comprises an electrical current and wherein
10 said threshold comprises a threshold voltage, wherein said electronic circuit converts said electrical current into a voltage for comparison to said threshold voltage.

23. The optical navigation device of Claim 22 wherein said
15 electronic circuit further comprises a selectable gain applied to said electrical current, wherein said selectable gain is selected using a control signal.

24. The optical navigation device of Claim 23 further comprising a
20 multiplexer coupled between said electronic circuit and said variable resistors, said multiplexer multiplexing said output signal and said control signal, wherein said variable resistor is regulated using said multiplexed output and control signals.